

**Abstract**

The invention provides a method and apparatus for optimising the performance of interpreter-based runtime systems. The runtime system may include a virtual machine where the virtual machine is adapted to interpret an application in the context of the particular runtime environment. The method comprises augmenting the bytecode set of the virtual machine with application-specific opcodes by reference to the application, thereby constituting an application domain-specific virtual machine. The invention also provides a method and apparatus for embedding semantically enriched code opcodes into an application which is to be run on the embedded runtime environment. The embedding can be done statically or dynamically. The invention may find be used in the Java runtime environment and particular applications of such embedded processors include function-specific devices such as cell-phones, PDAs and the like.